AMENDMENTS TO THE CLAIMS

This Listing of Claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. - 21. (Cancelled)

22. (Withdrawn) A method of movement control in an automation system comprising the steps of:

providing profiles that are processed on at least one of the group consisting of a time basis and position basis; and

providing at least one of the group consisting of argument variables and function variables associated with the profiles for use without units,

wherein the argument variables are of a different type from the function variables.

23. (Currently Amended) A programmable automation system for controlling the movement of at least one movable machine element, the automation system comprising:

a memory;

a profile, stored in the memory, for movement control that is prescribed as a function of a higher degree, the profile comprising at least one command variable and a secondary variable, the command variable representing a physical variable that is of a different type from the secondary variable and at least one of the variables comprising one of the group consisting of a time-dependent variable and a location-dependent variable, wherein the profile is created based on the command variable and the secondary variable, and wherein the profile is defined without any units; and

a program for activating the profile.

24. (Previously Presented) The automation system according to claim 23, wherein the profile for movement control is one of the group consisting of freely parameterized and created.

25. (Previously Presented) The automation system according to claim 23, wherein the function of a higher degree comprise a spline interpolation.

26. (Previously Presented) The automation system according to claim 23, wherein the function of a higher degree comprise a polynomial interpolation.

27. (Previously Presented) The automation system according to claim 26, wherein the polynomial interpolation comprises an order of up to at least a 6th order.

28. (Previously Presented) The automation system according to claim 23, wherein the function has a trigonometric element.

29. (Previously Presented) The automation system according to claim 23, wherein the profile comprises a combination of a plurality of segments, the plurality of segments of the profile formed from mathematical functions.

30. (Previously Presented) The automation system according to claim 29, wherein at least two individual unconnected segments of polynomial functions associated with the plurality of segments can be connected with a transitional segment.

31. (Previously Presented) The automation system according to claim 30, wherein the transitional segment comprise at least a function of a spline interpolation.

32. (Previously Presented) The automation system according to 23, wherein the movement control of the at least one movable machine element is associated with an axis, wherein the axis is associated with the profile.

33. (Currently Amended) A method for controlling the movement of at least one moveable machine element of one of the group consisting of an automated machine tool, an automated production machine, and an automated manipulator, the method comprising the steps of:

(a) providing a profile for movement control as a function of a higher degree that is one selected from the group consisting of a freely parameterized profile and a created profile, wherein the profile is defined without any units;

(b) providing at least one command variable and a secondary variable, wherein a physical variable that is of a different type from the secondary variable is determined as the command variable;

(c) determining one of the group consisting of a time-dependent variable and a location-dependent variable as at least one of the command variable and the secondary variable; and

(d) controlling, by a computer, the movement of the at least one moveable machine element based upon the command variable and the secondary variable.

34. (Previously Presented) The method according to claim 33, wherein a spline interpolation is used as the function of a higher degree.

35. (Previously Presented) The method according to claim 33, wherein a polynomial interpolation is used as the function of a higher degree.

36. (Previously Presented) The method according to claim 33, wherein the function is given a trigonometric element.

37. (Previously Presented) The method according to claim 33, wherein a plurality of segments associated with the profile are formed by functions, after which the profile is formed by a combination of the plurality of segments.

38. (Previously Presented) The method according to claim 37, wherein at least two individual unconnected segments of polynomial functions associated with the plurality of segments are connected with a transitional segment, wherein the transitional segment comprises a function of a spline interpolation.

39. (Previously Presented) The method according to claim 33, wherein a physical variable associated with the position of an axis is described by the profile.

40. (Previously Presented) The method according to claim 33, wherein a physical variable associated with the movement of an axis is described by the profile.

41. (Previously Presented) The method according to claim 33, wherein the profile is defined without any units.

42. (Previously Presented) The method according to claim 33, wherein the profile is defined from a user program during a program processing phase.

43. (Previously Presented) The method according to claim 33, wherein the profile is created by a graphic tool in an engineering system.

44. (Currently Amended) An engineering system for creating a profile for movement control as a freely creatable function of a higher degree, the system comprising:

a user program for creating the profile to be stored in memory, wherein the profile is based on at least one selected command variable and a secondary variable, the command variable representing a physical variable that is of a different type from the secondary variable and at least one of the variables comprising one of the group consisting of a time-dependent variable and a location-dependent variable; and

a memory to store the profile,

wherein the profile is defined without any units.

45. (Withdrawn) An automation system for movement control comprising:

(a) at least one profile comprising interpolations for optimizable movement control of at least one axis of the automation system, the at least one profile having a plurality of combinations of different types of variables stored in each of the at least one profile;

(b) at least one program for activating the at least one profile; and

(c) a memory for storing the at least one profile, wherein the at least one program accesses the at least one profile from memory for activating the profile.

46. (Withdrawn) The automation system according to claim 45, wherein the interpolations comprise at least one of the group consisting of a polynomial interpolation and a spline interpolation.

47. (Withdrawn) The automation system according to claim 45, wherein the at least one profile comprises a command variable and a secondary variable having a free determinability for establishing the plurality of combinations of variables stored in each of the at least one profile.

48. (Withdrawn) The automation system according to claim 47, wherein the command variable and a secondary variable comprise one of the group consisting of a position, a speed, a pressure, a force, and a moment.

49. (Withdrawn) The automation system according to claim 45, wherein the at least one profile comprises a plurality of segments each having a polynomial element and a trigonometric element.

50. (Withdrawn) The automation system according to claim 45, further comprising at least one of the group consisting of a linear connection, a cubic spline, and a Bezier spline for connection between each successive portion of the at least one profile.

51. (Cancelled)

52. (Previously Presented) The automation system according to claim 23, wherein the at least one program accesses the profile from memory for activating the profile.

53. (Previously Presented) The automation system according to claim 23, wherein the command variable is selected from the group consisting of a position, a speed, a pressure, a force, and a moment.

54. (Previously Presented) The automation system according to claim 44, further comprising at least one program for activating the profile.

55. (Previously Presented) The automation system according to claim 54, wherein the at least one program accesses the profile from memory for activating the profile.

56. (Previously Presented) The automation system according to claim 44, wherein the command variable is selected from the group consisting of a position, a speed, a pressure, a force, and a moment.